**SO 212C: Social Statistics**

**Saint Anselm College**

**M/W: 3:00-4:15pm – Gadbois 201**

**Spring 2022**

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Office Hours: Monday 10:00-11:00am; Tuesday 11:00am-12:00pm; and by appointment

 Optional Statistics Review – Friday time TBD (Will likely take place on zoom)

This course will introduce you to statistical techniques, concepts and reasoning. We will begin by discussing descriptive statistics (techniques used to summarize data in a sample) before moving on to inferential statistics. Inferential statistics allow us to make inferences about social processes in a full population, based on the information obtained in a much smaller sample of people. Throughout the course, you will learn to conduct statistical analyses using software named SPSSand to present your results. Beyond acquiring a set of marketable skills and the ability to critically assess quantitative research that you encounter in your program, you will leave the course with a knowledge base that is increasingly necessary to consume and evaluate arguments presented in the media.

The course does not assume any previous experience with statistics, and is not does involve particularly difficult mathematical calculations. However, it does require an understanding of (very) basic algebra.

**Quantitative Reasoning Core Objectives**

### Goals and Objectives

Quantitative reasoning is defined as the capacity for creative problem solving through the ability to assess numerical evidence and to reason from data.  Courses in quantitative reasoning will: promote understanding and appreciation of quantitative information and its application to problems from many areas; develop valid reasoning and decision-making skills; prepare students to apply numerical, logical, and analytical techniques as necessary to be active and responsible citizens, or as appropriate to the field; and develop in students the ability to gather, assess, and draw inferences from data and information, as well as the ability to recognize when an issue cannot be resolved using quantitative techniques.

### Student Learning Outcomes

Students who have completed their Quantitative Reasoning requirement should be able to:

#### Demonstrate a well-developed understanding of a theoretical and conceptual framework for quantitative reasoning, such as aspects of mathematics, statistics and logic

#### Solve problems quantitatively using appropriate arithmetical, algebraic, or statistical methods

#### Create and interpret visual representations of quantitative information, such as graphs or charts

#### Understand and critically assess data collection and its representation

#### Understand what can and cannot be inferred from a set of data and the limits of techniques used in order to recognize errors that can be made in carrying out analyses

#### Communicate and present quantitative results effectively

#### Apply quantitative reasoning in a practical manner to everyday situations

**Required Material**

*Strongly Reccomended:* Frankfort-Nachmias, Chava and Anna Leon-Guerrero. 2021. *Social Statistics for a Diverse Society*. 9th Edition. CA: Sage Publications, INC. (older editions will also work)

*Calculator:* You will need a basic scientific calculator. Anything that has the square root (√) and square (𝑥2) functions should be fine. You do not need a graphing calculator.

*Software:* The labs in the course will make use of SPSS, a statistical software package commonly used for data analysis. **IT will install this software on your laptop for free if you bring your computer to the Help Desk in the library.** You can also use the software for free, remotely, at: connect.anselm.edu

**Course Requirements**

*Readings:* Because of the nature of this course, it is difficult to plan exactly when each section of the textbook will be covered. My estimation of the reading schedule is located at the end of the syllabus. You can either read the textbook content before or after the lecture covering that material (whichever structure works best for your learning).If there is content in the book that I will not cover in lecture, but that you will be expected to know for quizzes/labs, I will make that known both in class and on the module for that week.

*Microlectures:* Since there is little reading for the class, some portion of the work outside of our classroom will be required video lectures. Throughout the semester, I will post “microlectures” on Canvas that extends material from lecture and/or explains content from the book. This material will be on the quizzes and labs, so it is vitally important that you watch them, take notes, and come to the next in class meeting prepared to ask any questions that you have regarding that material.

The schedule at the end of the syllabus lays out the plan for when video lectures will be posted and the content they will contain.

*Problem Sets:* I will provide you with problem sets regularly throughout the semester. The problem sets are extremely important if you want to do well in this class. We have limited time to work through examples in class, and the problem sets are your opportunity to really prepare yourself for the quizzes and lab assignments. These are not graded, but instead are provided as a resource to help you study for the quizzes and complete the written components of your labs. They are designed to mimic the sorts of questions you can expect for the quizzes.

*Quizzes:* Rather than exams, we will have four quizzes throughout the semester (schedule at the end of syllabus). The benefit of regular quizzes rather than larger exams is that they will only require you to be responsible for a few weeks of lectures worth of material. Each quiz is worth **150 points**.

*Labs:* In addition to class lecture and quizzes, we will have 5 graded lab assignments. The first 4 of these labs are worth **50 points each**. These will be group lab assignments, so I will ask you early in the semester to tell me the lab groups you want to work in (2 or 3 people).

Given our room structure and health concerns during a pandemic, we will likely hold our lab sessions on Zoom. Each lab group will get their own breakout room to work in, and I will be available to join your breakout room sessions to answer questions.

I will ask you to complete evaluations of your lab partners at the end of the semester (and perhaps at other points during the semester). Your partners’ evaluation of your contribution to the labs will be reflected in your score on your final lab. *If there is an issue with a lab partner not contributing, please let me know, so that we can address the issue before it becomes a larger issue.*

Your final lab will take the place of a comprehensive examination in the class. This will require you to use all of the skills learned in the class (descriptive statistics, data cleaning, and inferential statistics). You will rely on real publicly available data to answer a research question of your choosing. This lab is worth **150 points**.

*Class Participation:* Participation will account for **50 points**. In a small class setting, engagement and participation are invaluable. Students who are actively engaged in the course, participate in class discussions, and attend class regularly will receive full credit for participation.

*Attendance:* Given the unique circumstances we still find ourselves in, I do not have an official policy for missing classes. If you are healthy you are expected to attend class in person. If you feel ill, please notify health services, let me know that you will not be attending class, and follow the advice of health services. Our room is equipped for live streaming. So, if you give me sufficient notice, I will be able to live stream the class via zoom if you feel under the weather but well enough to attend and participate remotely.

**Grading**

Your grade will be based on the above requirements in the following manner:

Requirement Points Each Total Points

Quizzes 150 600

Lab Assignments (1-4) 50 200

Lab 5 150 150

Participation 50 50

Total 1000

Letter grades will be assigned as follows:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| A | 100-93% | (1000-930) |  | C | 76.9-73% | (769-730) |
| A- | 92.9-90% | (929-900) |  | C- | 72.9-70% | (729-700) |
| B+ | 89.9-87% | (899-870) |  | D+ | 69.9-67% | (699-670) |
| B | 86.9-83% | (869-830) |  | D | 66.9-63% | (699-630) |
| B- | 82.9-80% | (829-800) |  | D- | 62.9-60% | (629-600) |
| C+ | 79.9-77% | (799-770) |  | F | <60% | (<600) |

**Additional Policies**

­*Makeup Policy:* In almost all instances, **there will be no makeup quizzes or labs**. Make up quizzes or labs will only be granted under extraordinary circumstances. If you **absolutely** **have to** miss a quiz, **you need to notify me at least one week in advance** via email, and to provide proper documentation. If an emergency occurs on the day of a quiz, you must email me before the quiz and provide me with documentation immediately. Questions on any makeup exams will reflect the fact that students had additional time to prepare.

***NOTE: I understand that circumstances arise in students’ lives that will make completing material on the assigned day difficult/impossible. If you find yourself in one of these situations, please reach out to me so that we can set up a plan to ensure that you remain on track to complete the work for the course. In these situations, health services and the ARC are also invaluable resources that you should utilize.***

Late work without an official extension will be subject to the following procedure. Work that is turned in within 24 hours of the deadline will receive a **ten percentage point reduction** in the score. **An additional ten percentage point reduction** will be applied for each additional day that the work is late.

*Academic Integrity/Plagiarism:* Plagiarism will absolutely not be tolerated in this class. All work in assignments and exams MUST be your own. Presenting the work of someone else as your own or cheating on an exam will result in a failing grade (potentially for the course depending on the severity) and potential recourse by the college. (See page 11 of the Student Handbook). For more information on Saint Anselm’s policy on academic integrity see the following link:

http://www.anselm.edu/Library/Research-Help/Research-Tutorials/Academic-Integrity.htm

*ADA/504 Compliance Statement:* Saint Anselm College is committed to meeting the needs of students with documented physical, sensory, psychiatric, and learning disabilities. To disclose a disability and request academic accommodations, please email or call Jenne Powers, who will assist you in making contact with faculty members and/or arranging support services and accommodations available within the Academic Resource Center (ARC) and elsewhere. To ensure that accommodations are arranged in a timely manner, you are encouraged to make your request at the beginning of each semester.

For questions concerning support services, documentation guidelines, or disability issues, please contact Dr. Jenne Powers, Director of the Academic Resource Center, by phone at 603.641.7193 or by email at jmpowers@anselm.edu.

Additional information on documentation guidelines can be found here:

https://www.anselm.edu/academics/academic-resources/disability-services

*Electronic Devices:* “As a member of the learning community, each student has a responsibility to other students who are members of the community. When cell phones or pages ring and students respond in class or leave class to respond, it disrupts the class. Therefore, the Office of the Dean prohibits the use by students of cell phones, pagers, PDA’s, or similar communication devices during scheduled classes. Text messaging or accessing information on these devices is likewise forbidden. All such devices must be put in a silent (vibrate) mode and ordinarily should not be taken out during class. Given the fact that these same communication devices are an integral part of the College’s emergency notification system, an exception to this policy would occur when numerous devices activate simultaneously. When this occurs, students may consult their devices to determine if a college emergency exists. If that is not the case, the devices should be immediately put away. Other exceptions to this policy may be granted at the discretion of the instructor” (Student Handbook, p.13).

*Communication:* The best way to contact me is through email. I will check my email at least twice per day (once in the morning and once in the evening) and will respond to most emails within 24 hours. I will use email as the primary means of communication with you outside of the classroom, and will do so with the assumption that you will check your email at least once per day.

**Class Meeting Schedule**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Date** | **Class Content** | **Book Content** | **Online Content** |
| Week 1 | Monday | 24-Jan |  |  |  |
| Wednesday | 26-Jan | Intro and Key Terms | Chapter 1 |  |
| Week 2  | Monday | 31-Jan | Level of Measurement & Distribution | Chapter 2 | Video Lecture - Other ways of visualizing data |
| Wednesday | 2-Feb | Central Tendency | Chapter 3 |  |
| Week 3 | Monday | 7-Feb | Dispersion/Variability | Chapter 4 | Video Lecture - Descriptive Associations with Box Plots |
| Wednesday | 9-Feb | Standard Deviation extended & Lab 1 (not graded) | Chapter 4 |  |
| Week 4 | Monday | 14-Feb | Lab 2 (Descriptive Statistics) |  |  |
| Wednesday | 16-Feb | Sampling | Chapter 6 |  |
| Week 5 | Monday | 21-Feb | Quiz 1 |  |  |
| Wednesday | 23-Feb | Probability Rules and Trees | Chapter 6 | Video Lecture - Prob. Trees as Sample Outcomes |
| Week 6 | Monday | 28-Feb | Normal and Standard Normal Distributions | Chapter 5 |  |
| Wednesday | 2-Mar | Sampling Distributions | Chapter 6 | Video Lecture - Building the Sampling Distribution (will also do in class) |
| Week 7 | Monday | 7-Mar | Confidence Intervals for a Population Mean | Chapter 7 | Video Lecture - Confidence Intervals for a Population Proportion |
| Wednesday | 9-Mar | Quiz 2 |  |  |
| Week 8 | Monday | 14-Mar | Mid Semester Break |  |  |
| Wednesday | 16-Mar | Mid Semester Break |  |  |
| Week 9 | Monday | 21-Mar | Lab 3 (Creating new variables and scales) |  |  |
| Wednesday | 23-Mar | Introducing Hypothesis Testing | Chapter 8 | Video Lectures on Hypothesis Testing: Critical Values Test-Statistics; P-Values and Statistical Significance; Interpretations |
| Week 10 | Monday | 28-Mar | Independent Samples Difference of Means T-tests | Chapter 8 |  |
| Wednesday | 30-Mar | Lab 4 (Confidence Intervals and T-Tests) |  |  |
| Week 11 | Monday | 4-Apr | Chi-Squared Tests  | Chapter 9 |  |
| Wednesday | 6-Apr | Chi-Squared Tests  | Chapter 10 |  |
| Week 12 | Monday | 11-Apr | Quiz 3 |  |  |
| Wednesday | 13-Apr | Analysis of Variance (ANOVA) | Chapter 11 | Video Lecture - ANOVA Hypothesis Tests |
| Week 13 | Monday | 18-Apr | Easter Break |  |  |
| Wednesday | 20-Apr | Regression and Correlation | Chapter 12 |  |
| Week 14 | Monday | 25-Apr | Regression and Correlation |  | Video Lecture - Regression with a Dummy Variable |
| Wednesday | 27-Apr | Lab 5 (Chi-Squared, ANOVA, Regression) |  |  |
| Week 15 | Monday | 2-May | Regression and Correlation (Hypothesis Tests) |  |  |
| Wednesday | 4-May | Quiz 4 |  |  |
| Week 16 | Monday  | 9-May | Final Lab |  | Video Lectures: The Logic of Control; Multiple Regression |
| Wednesday | 11-May | Zoom Review Session |  |  |